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ABSTRACT

A study of 141 hearing impaired students (ages 8 to 18 years) was conducted to assess how common gender neutral terms (such as "someone," "people," "student," and "child'" are understood by such students. The influence of multiple factors that might relate to hearing impaired children's processing of gender neutral terms was examined by means of a word naming task and a picture identification task. Results showed that in general, the neutral terms enabled students to limit masculine bias that other studies have shown are evoked by such masculine specific generics as "man" and "he." However, a closer examination of the different patterns of associations to singular and plural words and to word presentation formats (name versus picture options) suggests that there may be an important difference between the ability to be sex inclusive and the ability to be self relevant. (Author/DLS)

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ASSESSMENT OF MALE AND FEMALE HEARING-IMPAIRED STUDENTS' IMAGERY TO GENDER NEUTRAL WORDS

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Abstract

Masculine specific generics (man, he) have been demonstrated to evoke masculine imagery in female and male hearing students. Recommendations have been made to replace, whenever possible, these generics with more gender neutral terms like someone or people. These words, however, may also carry masculine connotations and limit sex-inclusive imagery. The present study examined the adequacy of this replacement strategy for hearing impaired students. Results show that generally the neutral terms enabled students to limit masculine bias. However, a closer examination of the different patterns of associations to singular and plural words and to word presentation formats (name vs. picture options) suggests that there may be an important difference between the ability to be sex-inclusive and the ability to be self-relevant. The implications of this finding and suggestions for further research are discussed.

ASSESSMENT OF MALE AND FEMALE HEARING-IMPAIRED STUDENTS' IMAGERY TO GENDER NEUTRAL WORDS

The existence of sexism in educational curriculum materials has been the focus of increased concern and study in the last decade. The predominance of males in illustrations and as central characters in story lines has been well documented (Miller & Swift, 1977; and Nilsen, 1977).

Learning about the world through the stories and pictures of elementary textbooks, then, has often been primarily a lesson of male experience. Social scientists, linguists, and educators have also become concerned about the specific role that language plays in the promotion of this masculine bias. Particularly, generics or words like man and he that carry specific masculine connotations have come under careful scrutiny. Does a text about the "development of man" preclude students from realizing they are really studying the development of woman and man? Researchers have reported that words such as those which have both specific masculine and generic meanings do indeed evoke predominately masculine imagery and associations from both females and males (Martyna, 1978; Nilsen, 1977; Schneider & Hacker, 1973). As a consequence, these words seem to preclude the ability of females to include themselves and also the ability of males to include females (Bem & Bem, 1973). Even when these generics are paired with supposedly neutral terms like someone or person, the neutral terms themselves take on a masculine connotation (i.e., the person, he . . .). Also, with these common language pairings, females have been shown to be less likely than males to associate their own sex with the neutral terms (Martyna, 1978; Moulton, Robinson & Elias, 1978; Nilsen, 1977).

Limiting use of masculine generics, then, would seem to help avoid some confusion and promote the ability of hearing and hearing impaired students to fully identify with written materials. It is not clear, however, how to proceed after this step. Several possible language modification strategies have been proposed (Blaubergs, 1978). The circumvention approach suggests replacing the generic with a neutral term (like police officer instead of policeman). This assumes that neutral terms will provide both male and female readers with an equal opportunity to identify with the presented material. If, however, this is not the case, the alternative is to emphasize the feminine whenever appropriate by replacing the generic with a feminine specific (like policewoman instead of police officer).

Recent research has investigated the adequacy of the circumvention approach with hearing students. With this population, use of gender neutral terms like person, student, etc., did seem to enhance both male and female's ability to use their own sex as a personal referent and thus significantly associate their gender with presented material. It is not clear that this pattern would be similar for hearing impaired youngsters and, for them, alternative strategies may be necessary to insure that both males and females can fully identify with a wide range of material.

The present study was designed to examine the influence of several types of factors that might affect the hearing impaired child's associations to gender neutral terms. Specifically, the subject factors of sex, age, and reading level were investigated along with the word type factors of presentation format and singularity/plurality of the terms.

Subject Variables

Sex. It has been suggested that using oneself as a referent in the language requires initial practice with personal pronouns. Several researchers

(Myklebust, 1964; Wilbur, Montanelli, & Quigley, 1976) have noted that hearing impaired youngsters have difficulty acquiring rules of pronominalization and Myklebust argues that "psychologically this maybe of consequence because he (the deaf child) may lack words for personal reference". (p. 311). Beyond the general issue of acquisition of personal pronouns, however, the deaf child may particularly lack words for feminine reference as researchers (Russell, Quigley, & Power, 1976) have noted that the female pronouns (she, her) are acquired after the male pronouns (he, him). Because pronounalization is clearly problematic and written language is learned by way of carefully taught and precise rules, it may be that hearing impaired students, unlike hearing students, would not tend to use themselves as primary referents in their determination of the gender connotations of words but rather rely more on learned definitions, external rules, and experience with word usage. If this were the case, both male and female hearing impaired students would be expected to make fairly similar gender associations to neutral words and these associations would be expected to be reflective of whatever bias, or lack of it, took place in the previous learning process. In the present study, this issue was examined by comparing the associations of both male and female hearing impaired students to a variety of gender neutral terms.

Reading Level. The possible relationship between reading level and student's gender associations is difficult to predict. First, it might be reasonable to expect that the higher the reading level, the greater the amount and diversity of information the student would be able to receive about the world. This information, then, might encourage both females and males to use more mixed sex imagery in their associations. At the same time, it is possible because of the pervasiveness of masculine imagery and representation in this culture, that the more information a student receives,

the more masculine associations she or he would make. The present study examined the effect of this factor by assessing students at various reading levels.

Age. Most of the previous research with hearing subjects has focused on college or adolescent populations. The research that has assessed children's imagery has used a variety of stimulus types (figure drawings, tag questions, sentence completion) and has generally suggested that masculine imagery, for both males and females, may increase near the end of elementary school (Heinrich & Triebe, 1972; Martyna, 1978; Nilsen, 1977). This was not found in a study conducted with elementary age hearing children (Jean & Murphy-Berman, 1980) which assessed associations made to gender neutral words, but here age was only extended to twelve or the very end of middle childhood. In the present study with hearing impaired students, a wider age range was employed in an attempt to attain a more comprehensive delineation of the possible relationships between this variable and children's masculine or feminine imagery.

Stimulus Variables

Word Presentation Format. Another factor effecting the adequacy of neutral terms may be the manner in which they are presented. Textbooks, for example, are often illustrated and much of the classroom material designed specifically for hearing impaired students is highly visual. These pictures are likely to suggest a clear gender association for words in the text. For example, a story about people who run to keep fit may well be illustrated by a group of men jogging. Just as such a cue might serve to limit the association possibilities for the reader, a similar picture including both men and women joggers might serve to enhance the association possibilities. Following this reasoning a variety of types of cues, designed to enhance this process have

been shown to be helpful in cueing hearing subjects to include females in their association process. For example Martyna (1978) hypothesized and found that when subjects were presented with generic pronouns (he, his) accompanied by masculine and feminine name options, they were more inclusive of feminine responses than when they were left to generate their own answers. Jean and Murphy-Berman (1980) extended this examination with hearing subjects by assessing how the particular presentation format of the response options might affect the associations. Specifically, they examined how associations might vary with illustrative options (pictures) versus gender labelling options (names). With singular gender neutral words like person and someone, presentation format did not affect responses. An intriguing question concerns whether this would again be similar for hearing impaired students. That is, if the male and female response options are visually depicted rather than presented in name format, will the pictures stimulate the students to go beyond the use of the rule for referent and begin to use themselves as referent. Because the hearing impaired are more dependent on visual imagery for information about the world (Furth, 1966; Myklebust, 1964), it may be that they process words presented with concrete visual referents in a different manner than words presented with more abstract name referents and the pictures may evoke more personal gender identification.

Singular vs. Plural Words. Finally, the possible difference in the pattern of associations to plural and singular words was assessed. Different information is available from a systematic examination of responses to gender neutral singular and plural words. The singular property of a word like someone or person requires either a feminine or masculine association while the plural property of a word like people or everybody allows for both masculine and feminine associations. For example, if a subject chooses

a same-sex response to a singular word she or he must necessarily exclude an opposite sex response. However, a subject choosing a multiple response to a plural word may include a same-sex response as well as an opposite-sex response. Although the rule or definition for a singular gender neutral word like person may clearly state that the referent may be male or female, the student forced to choose must look beyond this rule for additional information. How is one to know if person means male or female? The student may, at this point, look inward to self as referent or outward to the context (the word presentation format) or the ways in which the word has been generally used. As with singular words, the rule or definition for a plural word like people may also clearly state that the referents may be both males and females, but in this case the student does not need to go beyond the definition for adequate information. There is room for both male and female associations. We predicted then that the stimulus factor of presentation format and the subject factor of sex would be most salient for singular words and reflected in students' association patterns. For plural words, we predicted that students would perform similarly given that they had adequate and similar knowledge of the rules.

Thus, the present study examined the influence of multiple factors that might relate to hearing impaired children's processing of gender neutral terms. Here an attempt was made to separate the effect of within subject factors (sex, age, and reading level) from stimulus factors (singularity/plurality and presentation format) on the association process.

Method

Sample. Participants in the study were one hundred and forty-one male and female hearing impaired students ranging in age from 8 to 18 and having reading comprehension scores ranging in grade level equivalences from 2.2

to 12.3 with a mean reading score of 5.00. Students were chosen to participate based on reading level scores that had been determined within the previous 12 months on a variety of standardized tests. They were recruited for this investigation from eleven schools for the deaf throughout the country.

Procedure. Assessment materials were extensively piloted with a local population of hearing impaired students before they were used in the research. Modifications made during this piloting generally involved simplifying the assessment tasks to make them more easily understandable to students with lower level language skills. After piloting, the materials were sent to participating schools where they were administered to students by classroom teachers. As a cover story, teachers were instructed to define the purpose of the assessment by explaining to students that we were designing instructional materials for children and wanted their help in determining names for people as well as appropriate illustrations for a visual dictionary. In each task students were told to choose the most representative picture or name to illustrate selected gender neutral nouns or pronouns. Instructions were worded simply and signed.

Within each classroom students were assigned to the Word Naming Task or the Picture Identification Task. For the assessment process each classroom of students was randomly divided into several groups. Each of these groups then completed either a Word Naming Task or a Picture Identification Task. All students then completed a rule assessment (assessment of students' understanding that gender neutral words can be used to represent males and females) and vocabulary test over the words used in the study. If a subject did not show adequate mastery on the vocabulary or the rules task, his or her other assessments were not used.

Dependent Variables

Word Naming Task. To assess students' imagery to words presented with non-visually explicit response options, a Word Naming Task was employed. In

this task students were asked to select one name from a list of common male and female names to best represent each of the gender neutral nouns person, student, child, and someone, and three names to best represent the nouns everybody, children, students, and people. For each of the four singular words, responses were scored 1 or 0 with 1 indicating the selection of a female name and 0 indicating the selection of a male name. A total score was computed by adding number of female names chosen over the four words. Thus, scores for the singular word task could range from 0 to 4 with 0 indicating no female names chosen and 4 indicating all female names chosen.

For each of the plural words, responses were coded 0, 1, 2, or 3 with the score reflecting the number of female names chosen. A total score was computed by adding the scores obtained for each of the four plural words. Thus, total scores for this task could range from 0-12 with 0 indicating that no female names were selected in any of the four words and 12 indicating that all female names were chosen.

Picture Identification Task. In this task, students chose one picture out of several possibilities to best illustrate the same singular and plural gender neutral nouns used in the Word Naming Task.

For each of the singular words, responses were scored either 1 or 0, with 1 indicating selection of a picture of a female and 0 indicating the selection of a picture of a male. A total score was computed by adding the number of female pictures chosen. Thus, scores for the singular word picture task could range from 0 to 4 with 0 indicating no female pictures chosen and 4 indicating all female pictures chosen.

For each of the plural words responses were coded 0, 1, 2, 3, or 4 with the score reflecting the number of females represented in the selected response. A total score was computed by adding the score obtained for each

of the four plural words. Thus, total scores for the plural word picture task could range from 0 to 16 with 0 indicating that in 4 words no females were depicted and 16 indicating that only females were represented in the chosen pictures.

Singular and plural words were intermixed for both the Word Naming and Picture Identification Task.

Results

Standard regression analyses were performed on the data to analyze the independent effects of age, reading level and sex on subjects' gender associations to singular or plural words presented with name or picture response options. No significant predictions were found for associations made to plural words or for responses made to singular words with name options. However, subjects' sex was a significant predictor of students' gender associations to singular words accompanied with picture options F (1,29) = 14.57, $p < .001$. With such terms, males and females tended to make responses biased in a same sex direction. The means for each of the four criterion variables are presented in Table 1. Table 2 presents the standardized beta coefficients for each of the three predictor variables for each regression analysis.

Finally, scores on the rule assessment were quite high averaging 90% correct and were not found to significantly relate to students' scores on any of the four dependent variables.

Discussion

The main objective of this investigation was to assess how common gender neutral terms are understood by hearing impaired students. Previous research with hearing students has demonstrated that supposedly neutral generic terms like man and he are not, in fact, very neutral. Both female and male students

tend to process these words as masculine, forgetting or ignoring that females, by definition, are included. One strategy that has been promoted for eliminating these masculine connotations and encouraging the inclusion of feminine imagery has been changed via circumvention or use of gender neutral terms like people to replace gender specific generics like man. With hearing students this replacement approach seems to work fairly effectively. That is, such terms have been found to evoke a substantial amount of feminine and masculine associations from both males and females. They are able to primarily associate their own sex to the words but are also clearly aware of the inclusion of the other sex. A basic question raised in the present study was whether this same pattern would be apparent for hearing impaired individuals. That is, would they, too, be able to fully identify both sexes with these theoretical gender neutral terms. Results suggest that the issue may be more complex than originally supposed and that we must consider in this answer both the characteristics of the person who is processing the words and the manner which the word is presented.

As was stated in the introduction, different information is available from an assessment of associations made to singular and plural words. The pattern of results found with the singular words will be considered first.

Singular Words. Within the definition of such singular words as someone or person, there is information about the number (singular) and the gender neutralness (male or female) of the term. However, when students must select only a masculine or feminine association to such words, simple knowledge of this information would not be sufficient for their decision-making. We speculated that in this situation, associations would be more influenced by internal self-projection factors or external contextual cues in the word presentation format.

The results show that students tended to choose and project their own sex only when the word was accompanied by concrete visual options. But when the response options were names, they chose and projected their own and the opposite sex fairly equally.

Such differential response patterns to words presented with name versus picture options were not found in similar research with hearing students where both types of word presentations evoked same-sex associations (Jean & Murphy-Berman, 1980). It would seem, then, that hearing impaired students might be gathering decision-making information from the presentation format in a different manner than are hearing students and only personalizing the words when specific types of contextual cues are present. Because the hearing impaired are more dependent on visual imagery for information about the world (Furth, 1966; Myklebust, 1964) it was expected that they might relate to words with picture response options quite differently from words without such options. This study confirms these expectations and suggests that for hearing impaired youngsters pictures may serve a multiple informational function. Specifically, within a textbook, picture options help the student define just exactly who is being referred to by a particular word. This study would further suggest that pictures also promote the students' ability to personally identify with the particular material. That is, without pictures hearing impaired students may relate to these words in a more abstract definitional sense but with visual options they may use their own sex as a referent, incorporating themselves into the word meanings. This finding may have important implications. First, it suggests that both male and female hearing impaired students may need to see their own sex visually represented in material in order to fully understand that it is personally inclusive. Secondly, it suggests that because of the hearing impaired

child's special sensitivity to pictures that such pictures may be potentially as damaging as they are helpful. If the word someone, for example, is consistently illustrated with a picture of a male, this might severely impair the deaf female's ability to include her own sex when she later reads the word and can imagine only the male referent.

Thus for the deaf female, change via circumvention may not always be adequate. In particular, it may be necessary to go beyond this whenever appropriate, to use feminine visual markers as well as feminine word markers to fully promote her ability to personally include herself in the language.

Plural Words. Unlike the singular words, that would require the student to go beyond the definition to determine gender, previously learned plural word definitions provide all the information necessary for the student's response. That is, both masculine and feminine associations could be made. We did not expect, then, that the subject factor of sex would significantly affect students' associations to such words. Nor did we expect to find differences between the name and picture options given the fact that the students would not need to look to the presentation format for additional information. The pattern of findings confirmed these expectations. Specifically here, both females and males made similar and predominantly mixed-sex associations to plural words accompanied by both word and picture response options.

As with the singular words, these findings were different from those found in a similar study with hearing students. Specifically, in that study (Jean & Murphy-Berman, 1980), both the subject factor of sex and the word presentation format affected plural word associations. Again, this suggests that hearing and hearing impaired students process these types of

words in very different ways. Because the responses of hearing students were affected by both subjects' sex and the word presentation format it seems that for them the rules or definitions for these words are not the main determining factor in their decision making process. As stated previously, for the hearing impaired, the reverse appears true.

The effect of the subject factors of student age and reading level on associations was also examined in the present study. Interestingly, neither of these factors significantly affected students' responses to either the singular or the plural words. It was speculated that these factors might have an impact on associations as with increasing age and increasing verbal fluency, students would become more and more immersed in a culture that exposes children to predominately masculine images. The fact that these factors did not affect responses again reinforces the notion of the potency of rules in the deaf child's processing of these types of words.

Conclusion

The question of whether using gender neutral terms with hearing impaired students is adequate to eliminate masculine bias in the language seems, on the surface, to have been answered. Specifically, these students are able to project both masculine and feminine associations in a generally equal way. They are able to do this, it was speculated, because of their reliance on the word definitions or rules. The concern of previous researchers, however, has gone beyond questioning whether or not subjects know the theoretical definitions of gender neutral terms. The more critical question is how the subjects process and personally identify with such words. It is hypothesized that only through this identification will students be able to use the language to learn about personally relevant options and possibilities.

The results of the present study suggest that hearing impaired students may not generally personalize these common gender neutral terms as much as hearing students unless specific conditions are present. In particular, they may not project themselves into such terms unless they are forced to go beyond learned rules in their decision making and unless words are presented with concrete visual options with which they can identify. Perhaps because pictures may be a more easily assimilated medium for the deaf child, pictures promote the child's ability to "see themselves" in the material and consequently use themselves as an information source. Future research might further investigate this issue by assessing the impact of various types of textbook word presentation formats on the deaf students' ability to personally relate to such text material.

Beyond this, another related issue appears to merit further study. Specifically, if one assumes that the way pictures are used with gender neutral terms affects the child's ability to personally relate to material, then a particular concern would be the effect on the deaf female of images that are predominately masculine. It may well be that in such a case the female students may not have the opportunity to consider as personally relevant the portrayed options and possibilities. It may also be that the male student needs to see pictures of both females and males in order to consider that both he and his female classmate can freely participate in the world.

Thus, change via circumvention seems an appropriate strategy for the deaf child; however, making, a word like <u>someone</u> more personally relevant than a word like <u>he</u>, may require the additional step of balancing such terms with visual materials that promote maximum self relevance.

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TABLE 1

MEAN PERCENTAGE OF FEMININE ASSOCIATIONS

Criterion Variable	N	Mean Percentage
Singular Word Naming Task	34	53%
Singular Picture Identification Task	33	46%
Plural Word Naming Task	36	47%
Plural Picture Identification Task	32	44%

TABLE 2

STANDARDIZED BETA COEFFICIENTS

Criterion Variable	Predictors		
	Age	Sex	Reading Level
Singular Word Naming Task (N = 34)	-.084	-.290	.063
Singular Picture Identification Task (N = 33)	-.288	-.568*	.308
Plural Word Naming Task (N = 36)	-.036	-.299	.119
Plural Picture Identification Task (N = 32)	-.138	-.235	.262

* significant at $p < .001$